

# LE “LOUIE” CAI

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## EDUCATION

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University of California, San Diego, Data Science B.S.

Sept 2020 – June 2024

- **GPA:** 3.7
- **Relevant Coursework:** Machine Learning, Deep Learning, NLP, Data Analysis, Computer Organization and Systems Programming, Data Structures & Object-Oriented Design, Differential Equations, Linear Algebra, Probability and Statistics, Discrete Mathematics, Components and Design Techniques for Digital Systems

## SKILLS

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- **Programming Languages:** Python, R, SQL, Java, C, C++, C#, Bash, HTML, CSS
- **Machine Learning/Big Data:** Machine Learning, Deep Learning, pandas, NumPy, matplotlib, scikit-learn, PyTorch, BeautifulSoup4, Request, Selenium, Plotly, FastAPI
- **Development Tools:** Unity, Linux, Docker, Blender, Gradle, Vim, Git, Jupyter

## PROJECTS

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### Convolutional Neural Network Image Classification

Feb 2022

- Developed a custom convolutional neural network with PyTorch to classify 20 categories of food images
- Constructed and trained the neural net with PyTorch and cuda; optimized the network through changing the architecture and the hyperparameters
- Graphed and analyzed the feature maps and the filters with matplotlib

### Twitter Sentiment Analysis API

July 2022

- Developed a configurable LSTM model to classify the sentiment of Twitter tweets into different categories and created an API that returns a response JSON object of the sentiment result with FastAPI
- Trained 1000 different LSTM models with grid search to find the optimal hyperparameters

### Minecraft Mod Development

June 2020 – Dec 2020

- Over **2.6M** downloads on [CurseForge](#)
- Developed a plugin that improves/expands the player experience by adding items to interact with in Minecraft
- **Technical Skills:** coded in Java under the Minecraft Forge framework and compiled with Gradle.

### Tiktok Reddit Video Automator

Aug 2022 - Now

- Created a Python script that downloads hottest videos from subreddits with the Reddit API and uploads them to tiktok accounts with Python and Selenium
- Can be deployed to a server and post videos automatically with configurable settings (rest interval, target subreddit, etc.)

### iOS Mobile Hockey Game

July 2021 – Today

- Developed a touch-based air hockey game with C# under the Unity game engine with a functional alpha version with a proper game mechanism, scoring system, UI animations, and an AI trained through reinforcement learning with Unity's ML-Agents library
- **Technical Skills:** uses C# scripts to create custom behaviors and trigger events. Used Blender to model the puck, bat, and table. Uses Photoshop to adjust the UI sprites.

## EXPERIENCE

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### Member of Triton Robotics

Jan 2023 - Now

- Member of the computer vision division of Triton Robotics
- Currently working on ballistics/projectile

### President of the Programming Club

Sept 2019 - May 2020

- Responsible for creating presentations and live demonstrations of Java code and presenting them to the club members